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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Duncan Alexander Robertson

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EXAMINER

LEACH, CRYSTAL I

ART UNIT

PAPER NUMBER

3737

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,509	Applicant(s) ROBERTSON ET AL.	
	Examiner CRYSTAL I. LEACH	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

DETAILED ACTION

Examiner notes that claims 8, 16 and 18 invoke 35 U.S.C. 112, sixth paragraph.

2. The following is a quotation of the sixth paragraph of 35 U.S.C. 112:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Regarding claim 1, the word "means" is followed by functional language in which the claimed element, specifically, the "isolation means", recites a means for performing a specified function. Examiner interprets claim 1 as intent to invoke 35 U.S.C. 112, sixth paragraph. However, since the "means for" functional language is modified by a sufficient structure, whereby the sufficient structure is a quasi-optical isolator, claim 1 fails to comply with the 3-prong analysis and does not invoke 35 U.S.C. 112, sixth paragraph.

Regarding claims 1 and 9-12, the word "means" is followed by functional language in which the claimed elements of claims 1 and 9-12 recite a means for performing a specified function. Examiner interprets these claims as intent to invoke 35 U.S.C. 112, sixth paragraph. Although examiner interprets the scanning means of claims 1, 9 and 10 to be the mirror, applicant has failed to distinctly point out in the written description the sufficient structure, which represents the "scanning means". Likewise, applicant has

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failed to distinctly point out in the written description, the sufficient structure, which represents the “indexing means” of claims 11 and 12. Therefore, 35 U.S.C. 112, sixth paragraph has not been invoked for claims 1 and 9 -12.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 8, 17-19 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edrich (4,407,292) in view of Huguenin et al. (5,760,397).

Edrich teaches a non-contact passive medical scanning imager for imaging subcutaneous body temperature (Abstract, lines 1-3) comprising: a detector capable of sensing millimeter wave electromagnetic radiation (5); a collector capable of collecting radiation emitted from a patient and directing that radiation along a collection path to the detector in such a manner that the collected radiation has a defined sensitivity profile across and along substantially the entire length of that path (see “waveguide” and “receiving horn”, col. 2, lines 49-55 and Abstract, lines 3-5); scanning means capable of causing a scan of a target area of the patient (col. 2, lines 51-52 and col. 2, line 68 – col. 3, line 4); a corrugated feedhorn (2); focusing means (col. 2, lines 16-25).

Edrich does not teach an isolator capable of preventing signal leakage from the detector being emitted towards the patient's body nor does Edrich teach a linearly

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polarized detector and an apparatus having polarization means for altering the polarization of received radiation so as to align with the polarization of the detector.

Huguenin et al. teach an isolator capable of preventing signal leakage from the detector being emitted towards the patient's body (184). Additionally, Huguenin et al. teach a linearly polarized detector and an apparatus having polarization means for altering the polarization of received radiation so as to align with the polarization of the detector (col. 5, lines 25-29 and 32-44; col. 7, lines 59-61 and col. 8, lines 5-7).

Furthermore, it would be obvious to provide a simple substitution of one form of isolator for another in order to obtain predictable results of leakage prevention, wherein the isolator is substituted for a quasi-optical isolator.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include an isolator, linearly polarized detector and polarization means for altering the polarization of received radiation so as to align with the polarization of the detector in the Edrich apparatus, in light of the teaching of Huguenin et al., in order to suppress unwanted reflections (see col. 6, line 67) and to account for the natural polarization effects of radiometric emissions.

5. Claims 4, 5, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edrich (4,407,292) in view of Huguenin et al. (5,760,397) further in view of Woskov et al. (5,785,426).

The combined invention of Edrich in view of Huguenin et al. do not explicitly teach the collected radiation having a Gaussian sensitivity profile, wherein the feedhorn

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is capable of converting a fundamental Gaussian mode beam of radiation into a waveguide mode in which radiation propagates through a waveguide to the detector.

Woskov et al. teach the collected radiation having a Gaussian sensitivity profile, wherein the feedhorn is capable of converting a fundamental Gaussian mode beam of radiation into a waveguide mode in which radiation propagates through a waveguide to the detector (col. 3, lines 8-10 and col. 6, lines 7-24 and 28-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a collector capable of collecting radiation having a Gaussian sensitivity profile and a feedhorn capable of converting a fundamental Gaussian mode beam of radiation into a waveguide mode in which radiation propagates through a waveguide to the detector in the combined apparatus of Edrich in view of Huguenin et al., in light of the teachings of Woskov et al., in order to enhance wave propagation and improve spatial resolution.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edrich (4,407,292) in view of Huguenin et al. (5,760,397) further in view of Durnin et al. (4,852,973).

The combined invention of Edrich in view of Huguenin et al. do not explicitly teach a collector capable of collecting radiation that has a Bessel sensitivity profile.

Durnin et al. teaches collecting radiation that has a Bessel sensitivity profile (Abstract, lines 1-7 and 20-26).

It would have been obvious to one having ordinary skill in the art at the time of the invention to include a collector capable of collecting radiation that has a Bessel

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sensitivity profile in the combined apparatus of Edrich in view of Huguenin et al., in light of the teachings of Durnin et al., in order to improve the apparatus's ability of reducing wave beam diffraction.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edrich (4,407,292) in view of Huguenin et al. (5,760,397) further in view of Durnin et al. (4,852,973) and further in view of Brenden et al. (4,545,653).

The combined invention of Edrich in view of Huguenin et al. further in view of Durnin et al. do not teach an axicon.

Brenden et al. teach an axicon (col. 1, line 66 – col. 2, line 21; col. 2, lines 35-44; and col. 3, lines 37-48).

It would have been obvious to one having ordinary skill in the art at the time of the invention to include an axicon in the combined invention of Edrich in view of Huguenin et al. further in view of Durnin et al., in light of the teachings of Brenden et al., in order to improve focusing of beam energy (col. 3, lines 5-14).

15. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edrich (4,407,292) in view of Huguenin et al. (5,760,397) further in view of Mushiake et al. (6,469,820).

The combined invention of Edrich in view of Huguenin et al. teach an apparatus capable of repeatedly sweeping (see Edrich, col. 2, line 68 – col. 3, line 5) and moving the collection path in a direction perpendicular to the scanning direction (see Edrich, col. 2, line 63 – col. 3, line 5 and figure 1) thereby moving the deflector (see Edrich, “reflector”, col. 3, lines 1-4) linearly along said axis.

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Edrich in view of Huguenin et al. do not teach an apparatus capable of sweeping the collection path through 360°, a deflector that is rotatable about one axis to scan the collection path in a scanning direction across a body, means for swinging the deflector about a second axis perpendicular to the first axis.

Mushiake et al. teach an apparatus capable of sweeping the collection path through 360° (col. 5, lines 24-28), a deflector that is capable of being rotated about one axis to scan the collection path in a scanning direction across a body (col. 10, lines 36-40), means for swinging the deflector about a second axis perpendicular to the first axis (col. 5, lines 16-19).

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edrich (4,407,292) in view of Huguenin et al. (5,760,397).

Edrich teaches a frequency range of 8 to 36 GHz (col. 2, line 50).

Huguenin et al. teach the range of 30 to 300 GHz (col. 1, lines 17-25). The ranges taught by both Edrich and Huguenin et al. are capable of providing thermal radiation information from subcutaneous tissue.

However, neither Edrich nor Huguenin et al. teach the range of 10 to 200 GHz.

It would have been obvious to one of ordinary skill in the art at the time of the invention to select values from the overlapping frequency ranges (see MPEP 2144.05) that will yield the most desirable results for a given procedure as decided by a physician or operator.

9. Claim 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over

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Edrich (4,407,292) in view of Huguenin et al. (5,760,397) further in view of Woskov et al. (5,785,426).

The combined invention of Edrich in view of Huguenin et al. do not explicitly teach an apparatus having calibration loads capable of emitting millimeter wave radiation at a pre-determined intensity, wherein the imager is capable of directing the radiation to the detector to enable the imager to be calibrated and the calibration loads both having means for maintaining them at different temperatures and are provided in the scanning path of the imager, so that the imager can be calibrated for each pass of the collector.

Woskov et al. teach an apparatus having calibration loads capable of emitting millimeter wave radiation at a pre-determined intensity, wherein the imager is capable of directing the radiation to the detector to enable the imager to be calibrated and the calibration loads both having means for maintaining them at different temperatures and are provided in the scanning path of the imager, so that the imager can be calibrated for each pass of the collector (col. 11, line 49 – col. 12, line 28).

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It would have been obvious to one having ordinary skill in the art at the time of the invention to include the calibration loads taught by Woskov et al. in the combined invention of Edrich in view of Huguenin et al. in order to ensure proper calibration of the apparatus thereby improving diagnosis. It also would have been obvious to one having ordinary skill in the art at the time of the invention to select temperatures straddling the range of the intended surface to be imaged and examined.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal I. Leach whose telephone number is 571-272-5211. The examiner can normally be reached on Monday through Friday, 8 am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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